REMARKS

#1. Numbered points 1 of the action (3-29-04) are a recitation of grounds for rejection under 35 U.S.C. 112.

#2. Numbered point 2 of the action (3-29-04) is a rejection under 35 U.S.C. 112, wherein claims 26 and 35 are rejected as indefinite Applicant has cancelled these two claims. **This cancellation is the only amendment to the claims filed in this response.**

#3. Numbered point 3 of the action (3-29-04) is a recitation of 35 U.S.C. 103(a), which forms the basis for all subsequent obviousness rejections of the action.

#4. Numbered point 4 of the action (3-29-04) recites factual inquiries established in Graham v. John Deere Co. for determining obviousness.

#5. Numbered point 5 of the action (3-29-04) is a rejection of claims 22, 25-37, 39, and 43-45 as unpatentable in view of the combination of three previously cited references, Baer '537, Emmett '259, and the journal article by Kaliteevski.

Bear teaches a spherical resonant cavity formed from a solid gain medium, the disclosed resonant cavity is completely enclosed by the solid gain medium.

Examiner found that Baer teaches a cavity wherein a coating provides reflectance only at a preferred angle-of-incidence, such that radiation only contributes to the modes when the radiation is propagating at approximately the angle-of-incidence.

However, it is respectfully submitted that this is not the case. **There is no suggestion in Baer of a coating that limits the reflection angle or the number of modes. On the contrary, Baer teaches constructing the spherical cavity with an equatorial coating that**

increases the mode volume of the disclosed toroidal resonator (column 4, lines 10-14). Furthermore, Baer teaches a means for mode selection that teaches away from the present invention; namely, Baer teaches means for defining propagation angle and limiting mode volume within the disclosed cavity through selection of the pump radiation angle (column 5, lines 15-21). No alternative means is suggested.

Emmett teaches the application of a multilayer dielectric structure as part of a lamp structure, wherein the multilayer structure would provide the narrow-band, angle-sensitive properties utilized in the present invention. However, such fundamental properties of these multilayer structures have been known and well-understood by those skilled in the art for several decades. The application of such properties in Emmett contains no suggestion that such properties might also be used for mode selection in a laser cavity.

The relied-upon Kaliteevski reference is a basic modeling publication in which field densities in a structure similar to a clad optical fiber are modeled using Maxwell's equations. Examiner states that mode selection properties of a cylindrical multilayer structure would be apparent from the calculations of Kaliteevski. However, calculations of Kaliteevski are based on a distinctly different multilayer structure that does not provide the properties required for operation of the present invention; namely, angle-sensitivity. Kaliteevski does not suggest the coating structure of Emmett, nor does Kaliteevski disclose a laser cavity, nor any mode selection means for laser cavities, so that the relied-upon Kaliteevski reference is not relevant to the present invention.

The seven numbered initial arguments of applicant's Response/Amendment A (filed 12-12-2003) to the first action, as well as additional five arguments of Response A, are incorporated herein by reference, and each argument is respectfully submitted by applicant as sufficient grounds for establishing patentability.

#6. Numbered point 6 of the action (3-29-04) is a rejection of claims 23 and 24 as

unpatentable in view of the combination of four previously cited references Baer '537, Emmett '259, Kaliteevski, and Smith'882. Examiner states that it would be obvious to combine the gas cavity of Smith with the embodiments of Baer. However, this combination is inoperable. A gas medium is not capable of producing lasing operation in the microsphere structures taught by Baer, nor would such a gas medium allow the coupling methods taught by Baer. Therefore, applicant also respectfully submits that these claims are allowable as dependent on claim 22.

#7. Numbered point 7 is a rejection of claims 38 and 40-42 as unpatentable in view of the combination of four previously cited references Baer '537, Emmett '259, Kaliteevski, and Greene '547. Applicant also respectfully submits that these claims are allowable as dependent on claim 22, which is believed to be allowable.

#8. Numbered point 8 of the action (3-29-04) is a response to applicant's arguments of previous filed response. It is noted that only the first argument, corresponding to remark #3 of applicant's first response, was addressed to in the action.

Applicant respectfully submits that applicant's argument cited in the Action was not rebutted by the subsequent Office action, since no mention was made to the applicant's remarks about the two references of Emmett and Baer. Applicant also respectfully submits that the additionally cited Kaliteevski reference also does not contain any suggestion or description that the Emmett coating structure could be used as a means for limiting the number of modes in a cavity. As a result, applicant respectfully requests reconsideration of this argument, as well as the other arguments presented in Response A of applicant and not addressed in the later action.

#9. Numbered point 9 of the action (3-29-04) comprises a conclusion of the action.

#10. In phone interview of 4/22/04, between Examiner Al-Nazer and applicant, Examiner

indicated that the claims might be allowable, and asked applicant to file supplemental arguments in support of their patentability. Applicant thanks Examiner for his helpful guidance in these discussions.

#11. Applicant wishes to thank Examiner Al-Nazer and S.P.E. Wong for their assistance in the informal telephone interviews conducted prior to this response. The applicant can be reached at 520-977-6423, and would appreciate any opportunity in the future to discuss any remaining issues concerning the application.

Very respectfully,

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